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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/911,277	07/23/2001	Frank-Gerhard Boss	Le A 34 494	4089

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EXAMINER	
HUI, SAN MING R	
ART UNIT	**PAPER NUMBER**
1617	

DATE MAILED: 01/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/911,277	Applicant(s) BOSS ET AL.	
	Examiner San-ming Hui	Art Unit 1617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 October 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 3-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☒ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Applicant's response filed October 17, 2002 is acknowledged.

Please note that the priority document of Germany 10122893.7 filed 05/11/2001 has not been received.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 3-8 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In the instant case, the specification fails to disclose the structural limitations of PDE 2 inhibitors. Only the functional limitations "compounds that inhibit PDE 2" and "compounds with IC_{50} less than 10μM" are disclosed. It is obvious that, from the term "PDE 2 inhibitor", these compounds will inhibit PDE 2 selectively. However, the specification fails to provide any structural information or characteristics, other than the compounds of Formula (I), for one of skilled artisan to ascertain what these compounds may be useful for the instant invention. Applicant has not specifically defined any of the PDE 2 inhibitors that fall within the broad genus claimed (Please note the claims herein read on **all** PDE 2 inhibitors) nor does Applicants describe any structural characteristics commonly

possessed by **all PDE 2 inhibitors** such that on of skill in the art would recognize that Applicant was in possession of full breadth of the herein claimed invention. Absent showing such information, the specification does not provide adequate support for the full breadth of the claims herein.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1 and 3-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The expression "improving perception" recited in claims 1 renders the claims indefinite as to how the improvement of perception is achieved. Perception can be a) awareness of the elements of environment through physical sensation and b) physical sensation interpreted in the light of experience (See Merriam-Webster's Collegiate Dictionary, 10th edition, 1998, page 861). In other words, there is no bad or good perceptions, it could be just a subjective feelings towards something based on the experience or values one might have, hence, nothing to improve from and nothing to improve to. Therefore, one of ordinary skill in the art would not recognize a way to improve perception since perception could depend on the experience one has. From the instant specification, the instant invention is apparently drawn to method of increasing awareness, cognitive functions, and capacity for comprehension.

Claims 3-8 recite the limitation "a disorder of perception, ... memory" in line 1-2. There is insufficient antecedent basis for this limitation in the claim.

The expression "disorder of perception" recited in claims 3-8 renders the claims indefinite because of the same reason provide above regarding "perception".

The expressions "a disorder of ... is a result of dementia" in claim 3, "a disorder of ... is a result of stroke or craniocerebral trauma" in claim 4, "a disorder of ... is a result of Alzheimer's disease" in claim 5, "a disorder of ... is a result of Parkinson's disease" in claim 6, "a disorder of ... is a result of depression" in claim 7, and "a disorder of ... is a result of dementia with frontal lobe degeneration" in claim 8, renders the claim indefinite as to what disorders are encompassed thereby. It is not clear what the exact relationship or association between dementia, stroke or craniocerebral trauma, Alzheimer's disease, Parkinson's disease, depression, and dementia with frontal lobe degeneration and the herein claimed disorders may be. Are the disorders direct results of dementia, stroke or craniocerebral trauma, Alzheimer's disease, Parkinson's disease, depression, or dementia with frontal lobe degeneration? Or are the disorders indirect results of dementia, stroke or craniocerebral trauma, Alzheimer's disease, Parkinson's disease, depression, or dementia with frontal lobe degeneration? If it is indirect result of dementia, then how closely are the disorders and the dementia, stroke or craniocerebral trauma, Alzheimer's disease, Parkinson's disease, depression, or dementia with frontal lobe degeneration associated?

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 3-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Rupp et al. (US Patent 5,141,936).

Rupp et al. teaches a method of administering an amount of trequinsin, also known as HL-725: a potent inhibitor of isolated PDE II inhibitor, to rabbits (See col. 7, line 7-24).

The herein claimed therapeutic effect will inherently present in the method of Rupp et al.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 4, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haning et al. (WO 98/40384), the equivalent of this patent is USPN 6,174,884 B1. All references herein are made to the English language patent, reference of the record.

Haning et al. teaches a method of treating cerebrovascular diseases (e.g., stroke) comprising administering to a patient the herein claimed PDE-II inhibitory compound of formula I, including the compound represented by example 39 (which reads on formula (I) compound of claim 9 in the instant application), see col. 43, lines 25-45, see also col. 13 line 50 to col. 14 line 61.

Haning et al. does not particularly teach the particular manifestations/symptoms of a stroke (e.g., impaired memory, perception, learning ability).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the method of Haning in treating disorders of perception, learning, concentration or memory.

One of ordinary skill in the art would have been motivated to employ the method of Haning in treating disorders of perception, learning, concentration or memory because disorders of perception, learning, concentration or memory are known to result from a stroke. Treating the underlying cause of these disorders would therefore be reasonably expected to effectively treat these symptomatic/secondary disorders, absent evidence to the contrary.

Claims 1 and 3-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Whalin et al. (Molecular Pharmacology, 1991; 39(6): 711-717, full text article will be forwarded to the applicants once available) in view of Egawa et al. (Japanese Journal of Pharmacology, 1997; 75:275-281).

Whalin teaches HL-725, also known as trequinsin, a potent inhibitor of isolated PDE II activity in vitro can cause 1) increased basal cAMP accumulation, 2) potentiation of adenosine-stimulated cAMP accumulation,a nd 3) retardation of the rate of cAMP decay (See particularly abstract).

Whalin et al. does not expressly teach trequinsin as useful for treating the disorders of perception, memory, and learning.

Egawa et al suggests the therapeutic effects of a PDE IV inhibitor, rolipram, for learning and memory impairment is result from the indirect potentiaton of various transmitters by an increase in camp through the inhibition of PED4 (See particularly the abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ trequinsin in a method of treating disorders of memory and learning impairment.

One of ordinary skill in the art would have been motivated to employ trequinsin in a method of treating disorders of memory and learning impairment since increase the cAMP resulting amelioration of memory/learing impairment. Therefore, one of ordinary skill in the art would be reasonably expect to employ trequinsin, a known potentiator of cAMP and enhancer for cAMP accumulation, to be similarly effective in relieving memory and learning impairment.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to San-ming Hui whose telephone number is (703) 305-1002. The examiner can normally be reached on Mon 9:00 to 1:00, Tu - Fri from 9:00 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sreeni Padmanabhan, PhD., can be reached on (703) 305-1877. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-4556 for regular communications and (703) 308-4556 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1235.

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